IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant:	Lolayekar, Santosh C., et al.		
Serial No.	10/051,321	Group Art Unit:	3627
Filed:	January 18, 2002	Examiner:	Refai, Ramsey
Title:	Storage Switch for Storage Area Network		

REPLY BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

In response to the Examiner's Answer of November 27, 2007, Appellants submit this Reply.

I. SUMMARY OF ARGUMENT

For the reasons previously advanced in Appellant's Appeal Brief and those set forth below, Appellants respectfully submit that:

The cited references to Latif and Tzeng do not teach processing packets without buffering or at wire speed and would not have rendered the claims obvious to one of ordinary skill in the art;

The references cannot be combined as proposed by the Examiner without impermissibly reconstructing the references in ways that would defeat

their purpose and function and render them inoperable for their intended purpose;

The Examiner's approach to obviousness by determining whether a reference can be reconstructed to meet the claims and still remain "operable" is not the test for obviousness; and

The Examiner failed to properly construe means plus function language in accordance with 35 U.S.C. §112, ¶6.

The statement of the claim rejections under 35 U.S.C. §103 in the Examiner's Answer on pages 3-7, paragraphs 1-22, substantially repeat verbatim the rejections in the Final Rejection, and have been fully addressed in Appellants' Appeal Brief. Accordingly, Appellants reassert these arguments without restating them, and incorporate them by reference in this Reply Brief. Accordingly, this Reply Brief will focus on the Examiner's Response to Argument which begins on page 7 of the Examiner's Answer.

For the reasons previously set forth in Appellants' Appeal Brief, and for the reasons below, it is again respectfully submitted that the rejections of Claims 1-6 and 18-44 are improper, unsustainable and should be reversed.

II. THE REFERENCES CANNOT BE COMBINED AS PROPOSED BY THE EXAMINER WITHOUT IMPERMISSIBLE RECONSTRUCTION

Briefly summarized, the Examiner's position is that Latif discloses the processing of storage commands but fails to explicitly disclose that the switch processes packets without buffering the packets, citing Latif at column 1, lines 25 – 30, column 6, lines 9-10, column 19, lines 30-37, (Examiner's Answer, page 8, last paragraph), that Tzeng discloses a network switch that processes incoming data

packets without buffering, citing Tzeng column 1, line 39 – column 2, line16, (Examiner's Answer page 8, last line – page 9, line 1), and that it would have been obvious to one of ordinary skill in the art to combine the teachings of Latif and Tzeng. (See Examiner's Answer, Page 9, top).

It is respectfully submitted that the Examiner is incorrect in at least two respects. First, neither Latif nor Tzeng teach processing packets without buffering and would not make it obvious to one skilled in the art to do so. And, second, Latif and Tzeng cannot be combined as proposed without impermissibly reconstructing the references in a manner which would defeat their intended purpose and function.

As to the first point, Latif relates to the transfer of data in an IP (Ethernet) network among network devices which operate using different network communication protocols. More particularly, Latif discloses transferring, i.e., switching and routing, data between IP, SCSI and Fibre Channel devices in an IP network. In order to handle the different communication protocols (formats), Latif discloses converting incoming IP, SCSI or Fibre Channel protocol data packets at input ports of the switch into an internal format used by the switch for handling and routing packets through the switch fabric, and then reconverting packets back from the internal switch format to a native IP, SCSI and Fibre Channel format corresponding to the particular network device connected to each output port. (See Latif, column 2, line 55 – column 3, line 5; column 3, lines 5-35 and 47 – column 4, line 2; column 6, lines 44-57).

Because certain data frames, such as FCP (Fibre Channel Protocol) data frames are not directly compatible with an Ethernet interface, ". . . transmission of FCP packets on an Ethernet interface requires that an FCP frame be encapsulated in an Ethernet frame as shown in Fig. 6a" (see column 8, lines 10-14). The switch of Latif encapsulates FC packets into an Ethernet frame with a "wrapper" around the FC information (column 8, lines 62-64). Since an encapsulated FCP data frame cannot be larger than the maximum Ethernet packet size, Latif teaches that it may be necessary that the FCP data frame be limited in size (column 9, lines 28-30) by using a "Buffer to Buffer Received Data Field" sized to force end nodes to communicate with data frames that will fit within an IP packet carried over an Ethernet link. Latif adjusts the Buffer to Buffer Received Date Field size in the frame as necessary for this (see column 9, lines 48-57). Thus, Latif teaches the use of buffering in order to transfer data packets having different incompatible communication protocols over an IP network.

Latif further teaches the necessity of buffering of a frame in order to determine the frame length and checksum of the frame and to write these into the frame header. (See column 15, Lines 14-17). Focusing on this buffering, the Examiner asserts (incorrectly) that one skilled in the art would recognize that "Latif's system would remain functional and operative without determining the length and checksum of packets. . .", and that "Latif's system therefore would not be rendered inoperative without buffering". (Examiner's Answer, page 8, lines 8-19).

It is respectfully submitted that the Examiner's proposed reconstruction of Latif would defeat the intended purpose and function of Latif and, in fact, would render the Latif system inoperable for its intended purpose of transferring packets having different protocols over an IP network. The fact that it might be possible to eliminate the buffering in Latif and still have a system which is operable for some purposes, such as for "handling packets that do not exceed the maximum allowable size", as asserted by the Examiner, is not the test for obviousness. Removing buffering from Latif would not only limit Latif's ability to determine the length and checksum of data in packets and, thus, limit its functionality, it would also limit the ability of the switch to transfer data packets having different protocols and formats through an IP network and, thus, render it inoperable for this purpose.

Rather, the test for determining obviousness is whether the claim elements are found in the prior art and can be combined with no change in their respective functions to yield nothing more than predictable results to one of ordinary skill in the art. (See *KSR International Co. v. Teleflex,* 127 S.Ct. 1727 at 1731, 82 USPQ 2d 1385 at1395 (2007)). Here, all of the claim elements are not found in the prior art, and the Examiner is attempting to apply Latif by changing the functions of the elements Latif does disclose.

As to Tzeng, it is again respectfully submitted that the Examiner is misinterpreting the teachings of this reference. Tzeng does not disclose processing of packets without buffering, as claimed. Tzeng states in his Summary of the Invention (at column 2, lines 7-10) that there is a "need" for a network switch without

buffering, but his disclosure does not describe and is not enabling as to a switch that does not employ buffering.

Rather, Tzeng, in fact, discloses that his switch incorporates a buffer memory 28 for storing data frames while the switch fabric processes forwarding decisions for received data packets. (See column 3, lines 60-67). Moreover, Tzeng discloses that the switch employs "minimal buffering" of packets in order to identify a corresponding protocol for an incoming packet. (See column 8, lines 53-59). "Minimal buffering" is not "without buffering". Neither Latif nor Tzeng disclose processing packets without buffering as claimed.

Thus, the combining the elements of Latif and Tzeng with no change in their respective functions to yield nothing more than predictable results, as required by *KSR*, would not result in render the claimed invention. These references do not disclose all of the claimed elements, and those elements that are disclosed in the references cannot be combined as suggested by the Examiner. In particular, the references do not disclose, and their combination would not produce, either a method or a system for storage command processing of packets without buffering, as claimed. Rather, it is only through impermissible reconstruction of the references using the teachings of Appellants' specification that one could combine the references in the manner proposed by the Examiner. However, such reconstruction would destroy the purpose, function and intent of the references, and still would not produce the invention.

Accordingly, it is respectfully submitted that Latif and Tzeng cannot be combined as proposed, and that these references would not have rendered the claimed invention obvious to one of ordinary skill in the art.

III. LATIF AND TZENG DO NOT DISCLOSE OR SUGGEST PROCESSING OF PACKETS WITHOUT BUFFERING OR AT WIRE SPEED

For the reasons pointed out above, Latif and Tzeng do not teach processing of packets without buffering. Moreover, as previously pointed out and as described in the specification, processing of packets at wire speed means that the packets are processed without buffering and that no more latency is introduced in processing the packets than would normally be introduced by a switch that merely performed switching and routing (Specification, page 6, lines 15-20). Since the references do not in combination render obvious the claims that recite "without buffering", they also cannot render obvious the claims that recite "at wire speed".

In responding to the foregoing argument which Appellants made in their Appeal Brief, the Examiner in his Answer (at page 9) asserts that one cannot show non-obviousness by attacking references individually where rejections are based on combinations of references, citing *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981) and *In re Merck & Co.*, 800 F.2d 1091, 232 USPQ 375 (Fed. Cir. 1986).

It is respectfully submitted that the Examiner has misapplied *Keller* and *Merck*. These cases do not stand for the proposition that one is prevented from demonstrating that references cannot be combined and, thus, do not render a claim obvious, by looking to the specific teachings of the references to show what they do teach to one skilled in the art. Rather, *Keller* and *Merck* merely hold that where

rejections are based on a combination of references, the test is not whether, focusing on one reference, there is a suggestion to use an element of the claimed invention in the combination, but rather what the combined references taken together would have suggested to one of ordinary skill in the art. Determining what references in combination would have taught or suggested to one of ordinary skill in the art to support a rejection requires, first, looking to each reference to determine its scope and teaching, and then considering the teachings of the references in combination to determine what together they teach or suggest to one of ordinary skill in the art.

Considering references in combination also requires considering whether the references teach against a proposed combination, or whether the teachings are such they would be incompatible with the proposed combination and render the resulting combination inoperative. Thus, it is entirely appropriate to focus on the teaching of individual references in order to determine what references in combination teach or do not teach. This is precisely what Appellants have done throughout prosecution and in their Appeal Brief. By demonstrating, as done above, that omitting the buffering in Latif would result in Latif not being capable of performing its intended purpose and function, Appellants are not attacking an individual reference, but rather are demonstrating why the Examiner's proposed combination is incompatible with the teachings of the references and unworkable.

IV. CLAIM 21 IS NOT A SINGLE MEANS CLAIM

On page 11 of his Answer, the Examiner asserts incorrectly that Claim 21 is a single means claim and that it does not comply with the enablement requirement of

35 U.S.C. §112, ¶ 1. It is respectfully submitted that the Examiner's characterization of Claim 21 as being a single means claim is wrong.

A single means claim is one where a "means recitation does not appear in combination with another recited element or means", (see M.P.E.P. §2164.08(a)), and is a claim of the general form "a machine comprising means for doing X." (*In re Hyatt*, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983)).

Claim 21 is directed to a switch and recites, in combination, a plurality of linecards, each including at least one port, and means associated with each port for performing wire speed storage command processing of packets. Claim 21 is, therefore, clearly a claim to a combination of elements, one of which is a means element, and the claim is not a single means claim as asserted by the Examiner.

V. THE EXAMINER FAILED TO CONSTRUE CLAIM 21 ACCORDING TO 35 U.S.C. §112, ¶ 6

As argued in Appellants' Appeal Brief, the Examiner improperly failed to properly construe Claim 21 in accordance with the 35 U.S.C. §112, ¶6. In response, the Examiner now asserts in his Answer (at page 12) that Appellants have not previously referenced the corresponding structure of the means plus function clause during prosecution, implying that it was Appellants' obligation to do so. The Examiner's position is wrong.

The Federal Circuit held in *In re Donaldson*, 116 F.3d 1189, 1193, 29 USPQ 2d 1845, 1848 (Fed. Cir. 1994) (*en banc*) and in *In re Alappat*, 33 F.3d 1526, 1540, 31 USPQ2d 1545, 1554 (Fed. Cir. 1994) (*en banc*) that 35 U.S.C. §112, ¶ 6 applies

regardless of the context in which the interpretation of means-plus-function language arises, and that the statute applies to the PTO. Moreover, the Federal Circuit stated that:

> The plain and unambiguous meaning of paragraph six is that one construing means-plus-function language in a claim must look to the specification and interpret that language in the light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure. Paragraph six does not state or even suggest that the PTO is exempt from this mandate, and there is no legislative history indicating that congress intended the PTO should be. (*Donaldson* at 1193) (emphasis added)

Thus, it was the Examiner's obligation to construe Claim 21 according to the statute to establish a *prima facie* rejection. Throughout prosecution, the Examiner made no attempt to apply the statute to the interpretation of Claim 21. Since this was not done, the rejection of Claim 21 is improper and should be reversed for this reason alone.

In his Answer, the Examiner now asserts, for the first time, that Appellants' specification fails to set forth an adequate disclosure describing the corresponding structure of the recited means plus function element. In responding to Appellants' indication of correspondence between the specification and this means element in their Appeal Brief, the Examiner now asserts in his Answer that, ". . . one skilled in the art would not be able to recognize the above citations as being the corresponding structure for the means plus function of claim 21 with *(sic* without) the Appellants' assistance." (Examiner's Answer, page 13). The Examiner has offered no explanation for this assertion, and has provided no reasons why he believes that

Appellants' specification is an inadequate disclosure of this means plus function element. If the Examiner is attempting to assert a new ground of rejection, it is respectfully submitted that it is untimely, flawed and improper because of the Examiner's failure to support the rejections with any rationale or reason for his position (see M.P.E.P. §2106.01, ("[t]he examiner must establish on the record that he or she has a reasonable basis for questioning the adequacy of the disclosure to enable a person skilled in the art to make and use the claimed invention without resorting to *undue experimentation*")(emphasis in original)).

It is submitted that Appellants' disclosure is in fact more than adequate to support the means plus function recitations of Claim 21. The specification describes in great detail the processing performed by the storage processor unit (SPU) to perform the functions recited in Claim 21, and is more than adequate to enable one skilled in the art to practice the claimed invention. The correspondence between the specification and the claim provided in the Appeal Brief is merely representative of some, but not all, support in the specification for claim. Thus, a rejection of Claim 21 under §112, ¶1 is not warranted.

VI. CONCLUSION

For the foregoing reasons, it is again respectfully submitted that the rejections of Claims 1 - 6 and 8 - 44 are improper, unsustainable, and should be reversed.

Dated: January 25, 2008

Respectfully Submitted,

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